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Engineering in motion

MODEL 47
MANUAL FOUR FOLD DOORS
Guide Specification Template

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EPD has provided this PDF guide template to assist in your development of an accurate document for use in specifying this product. Since this guide specification needs to be somewhat generic in nature for general usage, it may or may not fully represent the full needs of every project. The user of this specification guide should be knowledgeable and experienced in adapting general specifications to specific projects. By using this guide specification, the user assumes full responsibility for the appropriateness and completeness of the specification for the project.

The template contains areas identified with yellow highlighted notations that allow you to easily identify optional features and customize your document to meet the specific unique requirements for your project.

For example:

> The motor shall be high-starting torque, ball bearing, rated at 460 V, 3 phase

If your project requires 208-volt single-phase motors, replace the information with "***208 volt, single phase.*** Other areas serve as reminders of recommended inclusions in other related specifications for painting, electrical, miscellaneous metal, etc.

After selecting the appropriate changes, the completed guide specification can be printed out and used for your records.

If you fax or e-mail a copy of the finished specification to Electric Power Door, EPD can provide a fully editable version of your completed guide specification in MS Word or other formats along with additional comments and materials that are appropriate for your project.

Please feel free to contact the factory at anytime to discuss your specific needs.

Toll Free (800-346-5760) Fax (218) 262-6478 E-mail: support@electricpowerdoor.com

SECTION

Enter your specification number

MODEL 47
MANUAL OPERATED FOUR FOLD DOORS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to the Work of this Section.

1.02 SUMMARY

A. This Section describes the requirements for providing manual operated four fold doors as shown on the Drawings and specified.

B. Provide complete operating door assemblies including door sections, guides, hardware, and installation accessories.

C. Concrete or grout work is specified in Division 3, and is by others.

D. Opening framing is specified in Division 5, and is by others.

E. Finish painting is specified in Division 9, and is by others.

NOTE: Be sure to specify work in Sections 3, 5, 9 or other section numbers.

1.03 SUBMITTAL

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product Data: Submit manufacturer's product data, roughing-in diagrams, and installation instructions for each type and size of manual operated four fold doors. Provide operating instructions, and maintenance information.

C. Shop Drawing: Show construction details; clearance requirements, metal gauges, finish, design data, and interface requirements for Work of other Sections of this Specification.

D. Submit written certifications and calculations that verify the door assembly's ability to support its own weight and the specified loads.

E. Door Manufacturer shall submit a reference list including names and telephone numbers of five (5) successful installations of this type within the past two (2) years.

1.04 QUALITY ASSURANCE

A. Furnish each manual operated four fold door as a complete unit produced by one manufacturer, including hardware, accessories, mounting and installation components.

B. Door manufacturer shall have at least 10 years experience in manufacturing doors of the type specified.

C. Single Source: Furnish all manual four fold door units from one manufacturer for the entire Project.

D. Inserts and anchorages: Furnish setting drawings, templates, instructions, and directions for installation of anchoring devices. Coordinate delivery with work in other division to avoid delays.

E. See concrete and masonry Sections of these specifications for installation of inserts and anchorage devices.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Project design is based on materials and systems of:

Electric Power Door, 522 West 27th Street
Hibbing, MN 55746, 1-800-346-5760.

B. Similar materials and systems of other manufacturers will be considered for substitution, providing that all items of the specification are complied to and subject to the requirements of Section 01630, "Substitutions".

2.02 MATERIALS AND FABRICATION

A. General: Comply with the following standards for forms and type of materials for required items of work.

1. Steel Tubing, Electric Welded: ASTM A513
2. Steel Tubing, Structural Welded: ASTM A500 Grade B
3. Structural Shapes and plates: ASTM A36
4. Castings, Cast Iron: ASTM A48
5. Woven Steel Rod ¼" Diameter Minimum: ASTM A36

6. The use of cold formed shapes for structural members or stiffeners fabricated from sheets or strips of any material will not be allowed.

B. Design Criteria: The door panels shall be designed with sufficient structural stiffness and strength to resist the required wind load conditions without incurring permanent damage. Calculations shall be submitted to prove the adequacy of the door structure based on the formulas and methods contained in the AISC Manual of Steel Construction *Allowable Stress Design (Ninth Edition)*. The calculations shall confirm the structural qualities of the door panels using the following design parameters:

1. The "Net design wind pressure" p_{net} shall be [ ] pounds per square foot. (Mile per hour wind velocities should be converted to the "Net design wind pressure" p_{net} using the appropriate building codes and accounting for the project location, exposure factor, importance factor and other load contributing factors specified in the applicable code.)

2. The deflection (æ) at the mid-span distance of the main structural members of the door panel (both vertical and horizontal shall be less than the full spanning dimension divided by [120 (L/120) Pick One] Allowable deflections must be verified for both vertical and horizontal structural members.

3. Flexural stress at the extreme fiber (*f*) of the main structural members (both vertical and horizontal) shall be less than [ ] psi.

4. The moment of inertia (I) and the section modulus (S) of the main structural members (both vertical and horizontal) of the door panel shall be obtained from tables in the AISC Manual or geometrically computed.

   Geometrically computed values for the moment of inertia and section modulus shall not include contributory widths of sheeting or any other form of stiffener unless it is continuously welded to both edges of a main structural member and its size does not exceed the limits determined by the AISC Manual.

5. Uniformly distributed load per unit length (*w*) shall be calculated from the values p_{net} and the appropriate contributory area on the door panel.

6. Procedures contained in the "BEAM DIAGRAMS AND FORMULAS" (Section 2 of the AISC) shall be used to compute the maximum deflection and flexural stress at the extreme fiber. Calculations shall be based on the loading geometry shown in figure 1, (the weight of the door panel shall be ignored when the panel deflection and stress calculations are performed.)

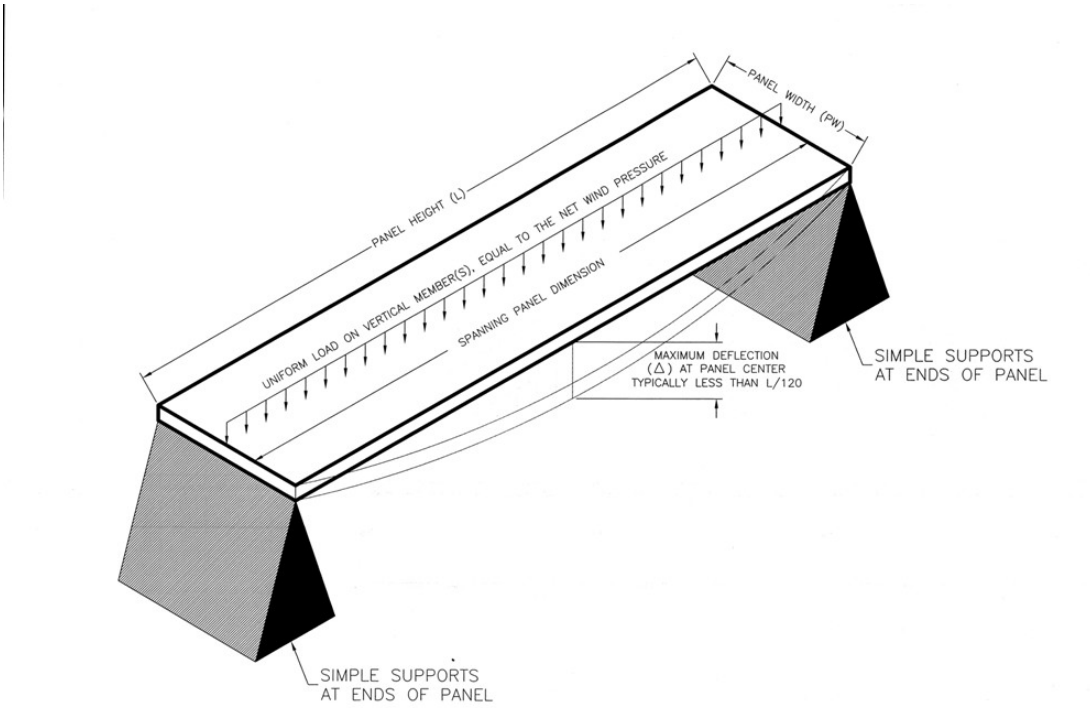

Figure 1
Example of a door panel simply supported on its non-spanning edges

C. Door Panel Construction: Custom metal fabrications as indicated.

1. Door panel frames (leaves) will have both horizontal and vertical structural framing, and shall be constructed of standard structural steel, square steel tubing, or rectangular steel tubing sections of ample size and strength for loads and stresses imposed under the specified conditions. Minimum steel tube thickness of the vertical perimeter members shall not be less than 0.083" or 14 gauge. Interior door panel frame members shall be steel tubing not less than 0.083" or 14 gauge thick and spaced at not more than 24 inches center to center. The interior members shall run horizontally. Pan style construction or the use of cold/hot formed sheet metal channels, hats, angles, or other sheet formed members in the panel construction will not be allowed.

2. The structural frames for the door panels shall be of welded construction and all joints shall be ground smooth wherever exposed and/or where sheeting overlaps the framing members.

3. Door panel frame members shall be true to dimension and square in all directions.

4. Door panels shall not be bowed, warped, or out of line by more than 1/8" in 20 feet.

5. Exposed welds and welds which interfere with the installation of various parts shall be ground smooth.

6. Door panel frames shall be inserted with 2" x 2" x ¼" diameter woven steel rod mesh which is welded to door panel frame at each rod end.

2.03 HARDWARE

A. Provide hardware necessary for a complete installation. Hardware shall be heavy duty type, including all bolts and fittings for the hardware as follows:

1. Door Guides:

a. For doors up to 16'-0" wide: The door guides shall be an upside down channel shape fabricated from 3/16" thick steel plate. Include wall support brackets. Guides shall be capable of being mounted within 4" of headroom.

b. For doors 16'-0" or wider: The door guides shall be steel "S" beams - S4 x 7.7 minimum. Include wall support brackets. Guides shall be capable of being mounted within 15" of headroom.

2. Guide Roller Assemblies:

a. For doors up to 16'-0" wide: The door shall have a minimum of two anti-friction bearing guide rollers. The guide rollers shall be of sufficient size to transmit the wind load from the door panel to the steel door guides.

b. For doors 16'-0" or wider: The door shall have a minimum of two anti-friction guide roller assemblies. The guide roller assemblies shall be of sufficient size to transmit the wind load from the door panels to the steel door guides. Provide two (2) rollers (3" minimum diameter) in each assembly with bearings to take the vertical load and four (4) steel rollers (1" minimum diameter) capable of withstanding the horizontal "Net design wind pressure" (p_{net}) loading.

3. Jamb Hinges: Door shall be complete with shop-applied strap type jamb hinges. Jamb hinges to be constructed from steel 3" x 3/8" bar. Any seams where the barrel of the jamb hinge joins the strap must be fully welded. A pair of gussets consisting of 1" x 3/8" x 21" long steel bars shall be welded to the surface of the hinge strap and barrel. Each hinge shall be supported on Timken roller bearings properly sized to carry the weight of the jamb and center door panels. Jamb hinges shall

be attached to the door panel with through bolted connections. Grease zerk fittings shall be provided on all hinge barrels for greasing hinge pintles.

4. Hinge Pintles: Jamb hinges shall have continuous 7/8" diameter steel pintle extending through the wall mounted jamb support plates and the strap hinge barrels for the full height of the opening. Stainless steel pintles used on exterior mounted or in corrosive areas.

5. Fold Hinges: Door shall be complete with strap type fold hinges. Fold hinges shall be constructed from 3" x 3/8" steel plate or bar. Any seams where the barrel of the fold hinge joins the strap must be fully welded. Hinge pins on the fold hinges shall be fully captured in the hinge stationary barrels above and below the rotating hinge (dual capture design) and have no less than two (2) shear planes. Fold hinges shall be equipped with 7/8" diameter hinge pins. Folding hinge pins shall have a grease chase with grease zerk firings provided for lubrication. All fold hinges shall be equipped with two (2) Timken roller bearings properly sized to carry the weight of the center door panel. Fold hinges shall be attached to the center and jamb door panel with through bolted connections.

6. Door Pulls: Provide heavy duty pull handles for operation of door

7. Cane Bolts: Provide two (2) heavy-duty cane bolts to hold the door in closed position.

8. Chain Pulls: Provide two (2) heavy duty chain bolts to hold the door in closed position.

9. Weather-stripping:

   a. Cloth inserted 1/8" rubber sweeps with aluminum retainer bars shall be supplied for application to the sill area.

   b. A combination reversing edge/weather seal shall be included for sealing the center meeting edges of the door panels. The reversing edge/weather seal shall be fabricated from a 1" diameter gum rubber pressure sensing tube covered with weather resistant vinyl impregnated onto rip-stop nylon fabric.